

8 OPEN SPACE AND CONSERVATION ELEMENT

The purpose of the Open Space and Conservation Element is to ensure the comprehensive and long-range preservation and management of open space land for the protection of natural resources, for economic uses, for outdoor recreation and as a scenic resource. The Open Space and Conservation Element seeks to maintain Livermore’s rural, small-town setting by preserving open space and natural resources.

Livermore is in many ways characterized by the environmental resources within and around it. The open hillsides to the north and south of the City, productive vineyards, and the arroyos play an important role in shaping Livermore’s sense of place. Similarly, the quality of these resources – the integrity of the area’s watersheds, views across grasslands, and productivity of agricultural lands – has an indelible effect on the quality of life experienced by residents and employees in the City. The Open Space and Conservation Element is based on the premise that the wise management of these natural resources is critical to maintaining the integrity of plant and animal communities, including human communities. The continuing challenge as the City grows is to direct human development and growth in a way that protects natural resources.

State law requires all General Plans to include an Open Space Element and a Conservation Element. The Open Space Element is concerned with the management of open space resources within the Planning Area. The Conservation Element is concerned with the conservation of natural resources, including plants and animal wildlife, rivers, lakes, and watersheds, forests, soils and minerals. Since the air is a natural resource, issues related to air quality are also addressed in this Element.

Since most natural resources are located in open space land, the Livermore General Plan combines these two elements into one. Combining the State-mandated Open Space and Conservation Elements avoids redundancy by allowing the similar and often overlapping aspects of these two elements to be explored in a single place in the General Plan.

Open space is any parcel or area of land and water that is essentially unimproved. Government Code Section 65560 describes four categories of open space: Open Space for the Preser

TABLE 8-1 GOVERNMENT CODE OPEN SPACE CLASSIFICATIONS

| Category | Examples in Livermore |
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| Open Space for the Preservation of Natural Resources <ul style="list-style-type: none"> Plant and animal habitat areas Rivers, streams, lakes and their banks Watershed lands Areas required for ecologic and other scientific study purposes | <ul style="list-style-type: none"> <i>Arroyos and creeks</i> <i>Alkali meadows</i> <i>Riparian woodlands</i> |
| Open Space Used for the Managed Production of Resources <ul style="list-style-type: none"> Agricultural lands Rangelands Forest and timber lands Mineral resource production areas | <ul style="list-style-type: none"> <i>Vineyards</i> <i>Grazing land</i> <i>Sand and gravel extraction areas</i> |
| Open Space for Outdoor Recreation <ul style="list-style-type: none"> Areas of outstanding scenic, historic and cultural value* Parks and other areas used for recreation Scenic corridors and trails Links between different open space areas | <ul style="list-style-type: none"> <i>Brushy Peak</i> <i>Lake Del Valle</i> <i>Scenic routes and hillsides</i> |
| Open Space for Public Health and Safety** <ul style="list-style-type: none"> Areas requiring special management or regulation because of risks presented by natural hazards such as earthquakes or flooding | <ul style="list-style-type: none"> <i>Flood prone areas</i> <i>Fault hazard zones</i> |

* Areas of historic and cultural value in Livermore are not discussed in this element, but are included in the Community Character Element.

**This category of open space is not discussed in this element; it is covered in the Public Safety Element.

vation of Natural Resources, Open Space for the Managed Production of Resources, Open Space for Outdoor Recreation, and Open Space for Public Health and Safety. Information in this Open Space and Conservation Element is organized according to these categories. The types of open space that are included in these categories are described in Table 8-1, along with examples of each taken from Livermore.

Not all aspects dictated by State law are discussed in this element, because they are included elsewhere within the General Plan. For example, open space for public health and safety is discussed in the Public Safety Element, and areas important for the preservation of historic and cultural resources are identified in the Community Character Element.

I. OPEN SPACE FOR THE PRESERVATION OF NATURAL RESOURCES

A. Background Information

Biological Resources

Livermore includes a diverse range of vegetation and habitat types, several of which are protected by local, State, and federal regulations. These vegetation and habitat types, which are described below and shown in Figure 8-1, host a wide range of wildlife and plant species and reflect the Bay Area's generally high level of biodiversity. The current challenge for Livermore is to allow for planned growth while preserving sensitive biological resources.

Eight separate vegetation and habitat types located in or adjacent to the City of Livermore are described below.

Urban Developed Areas

Urbanized environments, which comprise the majority of Livermore, do not generally provide habitat for native plants. However, there are many wildlife species that utilize urban areas for foraging, roosting, and/or nesting. These species include native animals that have adapted well to living in close proximity to humans, such as Pacific treefrog (*Hyla regilla*), western fence lizard (*Sceleroporus occidentalis*), and barn swallow (*Hirundo rustico*), in addition to non-native species, such as house sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*). In addition, a few protected species live in urban developed areas, such as burrowing owl (*Athene cunicularia*) and some species of bats.

Agricultural Areas

Depending on the type and intensity of agriculture, farmland varies in the degree to which it supports native plant and animal species. Grazing lands typically support the greatest diversity of species since the land is not as intensively managed and altered. Wildlife that may use grazing land in the Livermore region include California ground squirrel (*Spermophilus beecheyi*), black-tailed deer (*Odocoileus hemionus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), San Joaquin kit fox (*Vulpes macrotis mutica*) and many bird species, including birds of prey, such as red-tailed hawks (*Buteo jamaicensis*) and golden eagles (*Aquila chrysaetos*). Intensively farmed lands do not typically support native plant communities. However, wildlife species, particularly migrating waterfowl and raptors, use these fields for foraging and/or roosting. The edges of agricultural fields, where disturbance is minimized, may provide opportunities for burrowing animals, such as California ground squirrels and burrowing owls. In addition,

agricultural areas are often some of the few sites with readily available water, irrigation ditches, and stock ponds that are not heavily disturbed, and often support various species of reptiles and amphibians.

Grasslands

Three types of grassland exist within Livermore and its vicinity: non-native annual grassland; valley needlegrass grassland; and alkali meadows. Non-native annual grassland is the most common vegetation type in the vicinity of Livermore. It is generally found in areas that have been grazed, or in abandoned agricultural fields, and is usually dominated by annual, introduced grasses, mustards (*Brassica sp.*), and filaree (*Erodium sp.*), such as wild oats (*Avena fatua*) and fescue (*Vulpia myuros*).

As a result of grazing, intensive agriculture, reduction in fire frequency and the introduction of exotic species, native grassland has been reduced to 10 percent of its former area in California. However, some native grasslands still remain. Valley needlegrass grassland is a perennial, native grassland community that is typically dominated by purple needlegrass (*Nassella pulchra*) and often includes a variety of native and non-native spring wildflowers. Valley needlegrass grassland exists only in a few small remnants in the Planning Area. Because of the scarcity of valley needlegrass grassland, the habitat type is considered a Significant Natural Community by the California Department of Fish and Game.

Alkali meadows can be found within some grassland areas in the vicinity of Livermore, and favor a unique set of species such as saltgrass (*Distichlis spicata*), dwarf carrot (*Daucus pusilla*), and palmate-bracted bird's beak (*Cordylanthus palmatus*), a federally- and State-listed endangered plant. Alkali meadows are formed in shallow basins where the soil is particularly alkaline relative to surrounding grasslands. Many wildlife species use both non-native and native grasslands, including western rattlesnake (*Crotalus viridis*), horned lark (*Eremophila alpestris*), and black-tailed jackrabbit (*Lepus californicus*).

Riparian Areas

Riparian vegetation refers to the native scrub or woodlands occurring along streams and riverbanks. Riparian areas provide important breeding and foraging habitat for many amphibians, reptiles, birds, and mammals, and comprise one of the most biologically-diverse habitats in the region. Riparian vegetation used to be found along most perennial and intermittent streams in the Livermore area. However, this vegetation type has become rare due to disturbance by agriculture, development, and the past filling or channelization of small streams.

There are two kinds of riparian vegetation in the Livermore area: riparian scrub and riparian woodland. Riparian scrub is dense, brushy, and dominated by willows (*Salix sp.*). Riparian woodland has more large trees, fewer willows, and slightly more understory than riparian scrub. There are several arroyos in the Livermore area that still support riparian habitat. Arroyo Mocho is relatively undisturbed and, as a result, supports some mature riparian woodland with Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), and alder (*Alnus sp.*). Arroyo del Valle, particularly within the Sycamore Grove Regional Park, also supports mature riparian woodland. Other arroyos, such as Arroyo Las Positas and Arroyo Seco, have, in the past, been largely modified for flood control purposes and impacted by grazing. As a result, the riparian vegetation is sparse and has been replaced in some areas by aquatic vegetation like cattails and rushes as well as exotic species from the surrounding grasslands.

Wetlands

Wetlands are natural communities that depend on year-round or seasonally-dependable sources of water. The Livermore area supports several different types of wetlands: freshwater marsh; freshwater seep; northern claypan vernal pool; and alkali meadow/alkali sink scrub.

Valley freshwater marshes occur in areas that are wet year-round and are typically associated with ponds (natural or man-made), the shallow edges of lakes, and large pools in riparian areas. Marshes typically support cattails (*Typha sp.*), sedges (*Carex sp.*), rushes (*Juncus sp.*), willows (*Salix sp.*), and bulrushes (*Scirpus sp.*), and provide habitat for species such as California red-legged frog (*Rana aurora draytonii*), western pond turtle (*Clemmys marmorata*), and muskrat (*Ondatra zibethica*).

Freshwater seeps may be found in grasslands or meadows or associated with freshwater marshes. They have permanently wet or moist soil as a result of the water table being near the surface and typically contain sedges and rushes.

Vernal pools are seasonal wetlands that occur in grasslands. In order to form, they require slight depressions over bedrock or hardpan soils that allow water to pool during the winter and spring rains. Since vernal pools are a unique habitat and tend to be isolated from each other, they often support species that are endemic (i.e. restricted) to vernal pools or even to pools in that particular region. As a result of this endemism and the dramatic decline of vernal pools due to agriculture and development, vernal pools are listed as a Significant Natural Community by the California Department of Fish and Game and many vernal pool dependent plants and animals are special-status species protected by the State or federal government.

Alkali meadow/alkali sink scrub, which is also a Significant Natural Community, is typically found in the valley bottoms where the highly alkaline Rincon Solano, Clear Lake, and Pescadero soil series are present. The soils are seasonally saturated and slow to drain, supporting vegetation that is distinct from the surrounding grasslands or woodland. Similar to vernal pools and native grasslands, the extent of this habitat has diminished greatly with only small pockets left in the vicinity of Livermore.

Open Water

Permanent open water bodies are mostly restricted to the former sand and gravel pits west of the City, such as the lake within the Shadow Cliffs Regional Recreation Area. Other open water habitats may exist as small natural or man-made ponds and reservoirs. Although open water does not provide habitat for many plant species, it is important for wildlife and fish species such as bullfrogs (*Rana catesbeiana*), bluegill (*Lepomis macrochirus*), bass (*Micropterus sp.*), steelhead (*Oncorhynchus mykiss*), and California red-legged frog.

Woodland Forest

Woodland and forested habitats are largely restricted to the north and east-facing slopes or higher elevations to the south and west of Livermore. The moist microclimate produced by the altitude, steepness and/or aspect of these areas has allowed the establishment of dense stands of trees. Two woodland/forest communities are present in the Livermore Planning Area, depending on the microclimate of the site: coast live oak woodland and mixed evergreen forest.

Coast live oak woodland is typically found higher on slopes and on ridgetops where there is a drier microclimate and well-drained soils. The dominant tree species is coast live oak (*Quercus agrifolia*). Species found in coast live oak woodlands include a variety of reptiles and amphibians, acorn woodpeckers (*Melanerpes formicivorus*), dusky-footed woodrats (*Neotoma fuscipes*), and black-tailed deer.

Mixed evergreen forest occurs in the cooler, moister canyons and the east or north-facing slopes. The mixed evergreen forest varies from the coast live oak woodland by having a more closed canopy, greater vegetation diversity, and greater density of understory vegetation. Common tree species in this habitat type include coast live oak, California bay (*Umbellularia californica*), big leaf maple (*Acer macrophyllum*), and madrone (*Arbutus menziesii*). The understory vegetation typically includes poison oak (*Toxicodendron diversilobum*), hazelnut (*Corylus cornuta*), creambush (*Holodiscus discolor*), and coffeeberry (*Rhamnus californica*). Mixed evergreen forest is host to a wide range of amphibians, and bird and mammal species similar to those found in coast live oak woodland.

Scrub

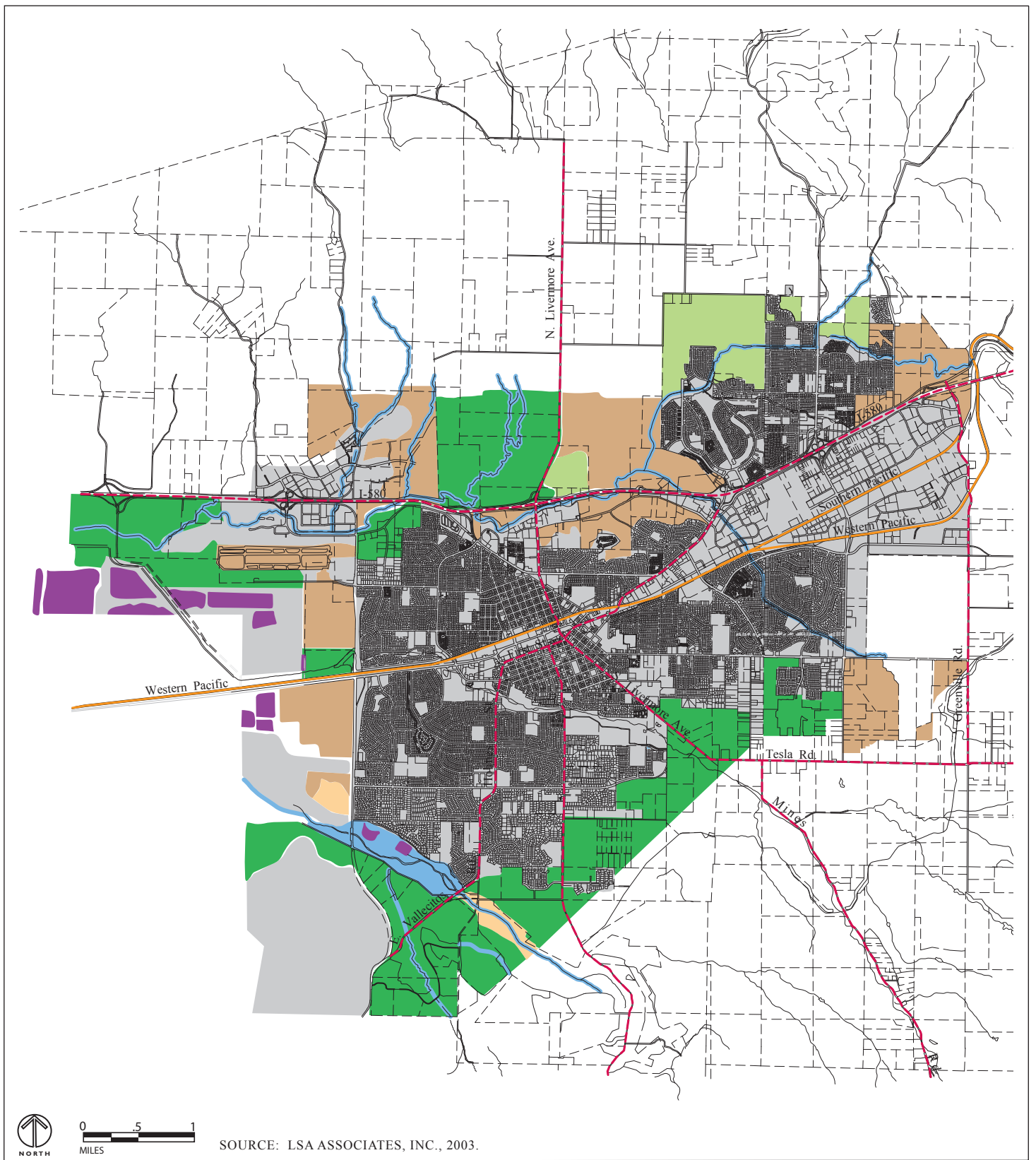
Scrub communities in the Livermore Planning Area generally occur on arid, south-facing slopes and above woodlands on the ridges and provide a transition between woodland and grassland. Three types of scrub community have been identified in the vicinity of Livermore: diablan sage scrub, coastal sage scrub, and baccharis brushland. The vegetation composition of these habitats is similar but chamise (*Adenostoma fasciculatum*) dominates the diablan sage scrub; California sage (*Artemisia californica*) dominates the coastal sage scrub; and coyote bush (*Baccharis pilularis*) dominates the baccharis brushland. Because they are generally warm, the scrub communities are home to a number of reptile species, including the federal and State-listed Alameda whipsnake (*Masticophis lateralis euryxanthus*), western rattlesnake, common kingsnake (*Lampropeltis getulus*), western fence lizard, and northern alligator lizard (*Elgaria coerulea*). Many bird species common to these habitats include California thrasher (*Toxostoma redivivum*), wrentit (*Chamaea fasciata*), spotted towhee (*Pipilo maculatus*) and California quail (*Callipepla californica*). Mammals that are likely to use this habitat for cover and forage include black-tailed deer, coyote, gray fox (*Urocyon cinereoargenteus*), black-tailed jackrabbit, and various rodents.

Water Resources

Livermore's water resources include its creeks and arroyos, surface water, and groundwater. These resources are closely interrelated.

Waterways

Several creeks and arroyos cross the Livermore Valley. Livermore's watershed and principal waterways are shown in Figure 8-1, and include Arroyo Las Positas, Cayetano Creek, Arroyo del Valle, Arroyo Mocho, and Arroyo Seco. Most of these waterways flow from east to west. The Arroyo del Valle drains a relatively small area of the central and southern portion of the City. Arroyo Mocho flows through the southern portion of the City, draining much of the



- agriculture
- developed
- grassland/pasture
- seasonal wetland/grassland
- scrub/woodland
- open water
- creeks/riparian vegetation

FIGURE 8 - 1

BIOLOGICAL RESOURCES

Downtown area. Arroyo Las Positas generally flows along I-580 through Livermore. The major tributaries to Arroyo Las Positas include Arroyo Seco, Altamont Creek, Cayetano Creek, Collier Canyon Creek and Cottonwood Creek.

Surface Water Quality

Major sources of pollution in and around Livermore include runoff from urban and agricultural areas. These sources contribute petroleum hydrocarbons, metals, fertilizers, insecticides, and other chemicals to the water system. The Regional Water Quality Control Board (RWQCB) periodically reviews available data on surface water bodies and evaluates whether beneficial uses for the water body may be impaired. If a water body is designated as “impaired” for a particular pollutant, then the water body is listed under Section 303(d) of the Clean Water Act. In 2002, Arroyo Del Valle was listed as impaired for the pesticide diazinon.

Groundwater Quality

The City’s groundwater comes from a part of the Livermore Valley Groundwater Basin underlying Livermore known as the Main Basin. In general, the City’s groundwater meets primary drinking water standards, however, there are concerns over other parameters such as total dissolved solids and hardness. Salts are initially introduced into the Main Basin with imported water supplies and via runoff from saline/alkali soils. Additional in-valley sources of salt include the use of recycled water and water softener regeneration. Although the water may leave the Main Basin by evaporation, evapotranspiration, or through surface and groundwater outflow, much of the salts stay behind, potentially leading to a build-up of salt in the soil and groundwater. Excessive salt loading can result in a degraded water supply, particularly if concentrations exceed the Secondary Drinking Water standard of 500 milligrams per liter (mg/L). Zone 7 estimates that if the salt loading continues unchecked, the usability of the groundwater in the Main Basin could be substantially affected. Preserving and enhancing existing groundwater quality will hinge on the success of the Salt Management Plan, which has been prepared by Zone 7 to implement strategies that fully offset salt loading in the Main Basin.

B. Goals, Objectives, Policies, and Actions

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| Goal OSC-1 Conserve the value and function of Livermore’s open space as a biological resource. |
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Objective OSC-1.1 Maintain biodiversity within the Planning Area with special emphasis on species that are sensitive, rare, declining, unique or represent valuable biological resources.

Policies

- P1. Priority shall be given to land acquisition efforts that would result in the creation and expansion of linkages between existing protected natural resource areas.
- P2. The City shall support efforts to preserve and maintain Corral Hollow, important as the most northerly range of desert plants and animals, as open space.
- P3. The City shall support efforts to preserve and maintain Cedar Mountain, important for its restricted stand of Sargent Cypress, var., *Duttoni*, as open space.
- P4. The City shall require all projects that impact a federal or State listed threatened or endangered species, federal or State listed candidate species, State species of special concern, or State designated sensitive habitats, to mitigate for identified impacts in a way consistent with mitigation and avoidance measures published and distributed by the federal and/or State resource agencies at the time of the specific plan or project-level review. Monitoring requirements also shall be consistent with published requirements for each species or habitat. For listed or candidate species, species of special concern, or sensitive habitats for which no mitigation or avoidance measures have been published, the City shall require evidence of coordination with the responsible agencies prior to acceptance of mitigation or avoidance measures or monitoring requirements.
- P5. The City shall support efforts to preserve and protect the Brushy Peak Regional Preserve consistent with the goals of EBRPD’s Master Plan for the Preserve. The City’s efforts shall include coordination with EBRPD and LARPD during preparation of a specific plan for the Greenville/Southfront TOD to address concerns relating to potential impacts to the protection of the Preserve.

- P6. The City shall preserve and maintain Frick Lake and the Springtown Alkali Sink area as important wildlife and plant habitats through preservation of open space in and around these areas.

Actions

- A1. Require all development to comply with State and federal regulations to preserve and protect the habitats of rare and endangered species.
- A2. Encourage agricultural interests to maintain or develop areas of natural habitat with wildlife-compatible farm management practices.

Objective OSC-1.2 Minimize impacts to sensitive natural habitats including alkali sinks, riparian vegetation, wetlands and woodland forest.

Policies

- P1. Habitats of rare or endangered species shall be preserved.
- P2. Use and development of riparian areas should enhance the appearance of the creekside environment and protect and enhance native vegetation.
- P3. Require appropriate setbacks, to be determined in coordination with resource agencies, LARPD, EBRPD, and other responsible agencies, adjacent to natural streams to provide adequate buffer areas that ensure the protection of plant and animal communities.
- P4. Riparian woodlands and freshwater marshes shall be preserved. Developers shall be required to mitigate possible adverse impacts upon these resource areas. *Consistent with the North Livermore Urban Growth Boundary Initiative, no development shall be allowed that would have a substantial adverse impact or significant effect on such areas (NLUGBI).*
- P5. Grading and excavation in woodland areas shall avoid disturbances to subsurface soil, water or rooting patterns for natural vegetation.
- P6. The City shall require all development to comply with State and federal regulations to preserve and protect the habitats of rare and endangered species.

- P7. The City shall require project proponents to identify and map sensitive biological and wetland resources on each development parcel and identify the measures necessary to avoid and/or minimize impacts on sensitive biological and wetland resources prior to approving the development. Mitigation for impacts to sensitive biological and wetland resources shall replace the functions and values of the resources as well as gross acreage.
- P8. The City shall require development to avoid take of species listed as threatened, endangered, or candidate under federal and state endangered species acts by implementing measures determined in consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game.
- P9. *Development, conversion to cultivated agriculture, or keeping of animals is not permitted if the quantity or biological quality of wetlands would be reduced materially. "Wetlands" are areas permanently or periodically covered by water, where hydrophytic vegetation is present under normal circumstances, or that have soils primarily hydric in nature. (NLUGBI)*
- P10. *No building may be located in a riparian corridor. No development, conversion to cultivated agriculture, or keeping of animals may be permitted that materially reduces the quantity or quality of water in a corridor. Dams to store water for agriculture may be permitted, however, provided water is released in quantities and at times so as not to impair aquatic life or riparian vegetation. "Riparian corridors" are areas within 200 feet from the center of a permanent or intermittent stream. (NLUGBI)*
- P11. *No development or conversion to cultivated agriculture shall be permitted by the City which will cause a reduction or impairment contrary to federal or State law of habitat for animals or plants that are listed by the federal or State governments as endangered or threatened. (NLUGBI)*
- P12. The City shall require the maintenance of adequately-sized terrestrial and aquatic movement corridors that connect natural open space areas.
- P13. The City shall preserve the sycamore alluvial woodlands along the Arroyo Mocho and Arroyo del Valle as important wildlife and plant habitat through the preservation of open space and appropriate buffers in and around these areas.

Objective OSC-1.3 Conserve Livermore's native trees and vegetation, which are important biological resources within the Planning Area.

Policy

- P1. Require new developments to incorporate native vegetation into their landscape plans, and prohibit the use of invasive non-native plant species. Propagules (seeds or plants) of native plants shall be from native sources.

Actions

- A1. Restore areas adjacent to existing open space areas with native plant and animal communities. Restoration should be accomplished with native plants from local sources.
- A2. Develop and implement an urban forest preservation ordinance, inclusive of an inventory of ancestral trees, to require the preservation of trees of significant value.

Objective OSC-1.4 Coordinate with other levels of government and interested agencies to preserve natural resources.

Policies

- P1. The City shall encourage the County of Alameda, East Bay Regional Park District, and the Livermore Area Recreation and Parks District to preserve and protect areas outside the Urban Growth Boundary.
- P2. The City shall encourage and cooperate with the County of Alameda to undertake a study to: (1) map the precise distribution of the rare and endangered species as to their number and sites; and (2) determine the sensitivity of these species to development, so that effective management programs can be developed.
- P3. The City shall encourage and cooperate with the County, EBRPD, LARPD, and other agencies and organizations to establish a program to preserve representative examples of natural and near-natural landscape communities, such as the Springtown Alkali Sink, Brushy Peak, Corral Hollow, Cedar Mountain and Sycamore Grove.
- P4. The City shall monitor, on an on-going basis, open space easements received as part of its regulatory authority or through other acquisition, and work with other easement holders to maintain the values of the easement.

Actions

- A1. Work with local, regional, and State natural resource agencies and area non-profit organizations to develop programs to fund preservation of sensitive biological resources, including arroyos, wetlands, and grasslands.
- A2. Work with other agencies such as Zone 7 and RWQCB to develop an intergovernmental program to reestablish the riparian community along major drainage ways in the Planning Area.
- A3. The City shall develop a list of priorities and implementation plan regarding acquisition and/or preservation of open space areas to assist with the use of open space and other preservation fees or funds received by the City.

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| Goal OSC-2 Conserve Livermore's waterways, tributaries and associated riparian habitats. |
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Objective OSC-2.1 Continue efforts to ensure that development does not harm the quality or quantity of Livermore's surface or ground water.

Policies

- P1. Require the implementation of Best Management Practices (BMPs) to minimize erosion, sedimentation, and water quality degradation resulting from the construction of new impervious surfaces.
- P2. The City shall take all necessary measures to regulate runoff from urban uses to protect the quality of surface and ground water.
- P3. The City shall work with Zone 7 to develop a recharge area map to guide future development. Developments proposed in areas identified as "valuable" to the recharge area shall mitigate adverse impacts to the greatest extent possible.
- P4. The City shall continue to work with Zone 7 to address on-going aquifer salt-loading in the basin.
- P5. The City shall contribute its fair share to the cost of implementing the plan developed by Zone 7 for salt management.

Action

- A1. Implement a program for integrated pest management (IPM) for City-managed landscaping areas that minimizes the use of pesticides and herbicides, and strives toward an organic pest-management approach. Provide incentives for the adoption of IPM practices on private land.

II. OPEN SPACE USED FOR THE MANAGED PRODUCTION OF RESOURCES

A. Background Information

Soils and Agricultural Resources

Although agricultural production in Alameda County comprises only about 0.1 percent of agricultural production in California, farmland is an important component of open space preservation around Livermore. Agricultural lands not only provide visual relief from urbanized areas, but in combination with planning and zoning regulations, they restrict the outward growth of the City. In addition, a vibrant agricultural sector is an important amenity that attracts visitors to Livermore, improves quality of life, and results in a more diversified local economy. Although grape and wine production is a relatively small component of the Livermore economy, viticulture in the area is expanding.

Farmland Patterns

Much of the area within Livermore's City limits has been urbanized. Population and job growth in the Livermore Valley has resulted in pressure to develop housing and commercial establishments on lands historically used for agriculture. However, agricultural resources remain. As of 2002, approximately 1,061 acres of land within the Livermore City limits were in agricultural uses. Contiguous agricultural resources are more extensive outside the City boundaries. Unincorporated areas to the north, east, and west of Livermore are currently used for rangeland, dry farmland, irrigated cropland, and uncultivated farmland. Agricultural uses south of Livermore include extensive vineyards, orchards (mainly olives and nuts), rangeland, and uncultivated farmland.

Farmland Classifications

Farmland is classified and mapped by the State Department of Conservation, Division of Land Resource Protection for the purposes of tracking farmland development throughout the State. Farmland is mapped into categories ranging from Prime Farmland, which has the best combination of physical

characteristics able to sustain long-term agricultural production, to Grazing Land, which allows for the grazing of livestock. As shown in Figure 8-2, lands to the north and west of Livermore are generally mapped as Grazing Land. Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are primarily located south of Livermore's City limits.

Mineral Resources

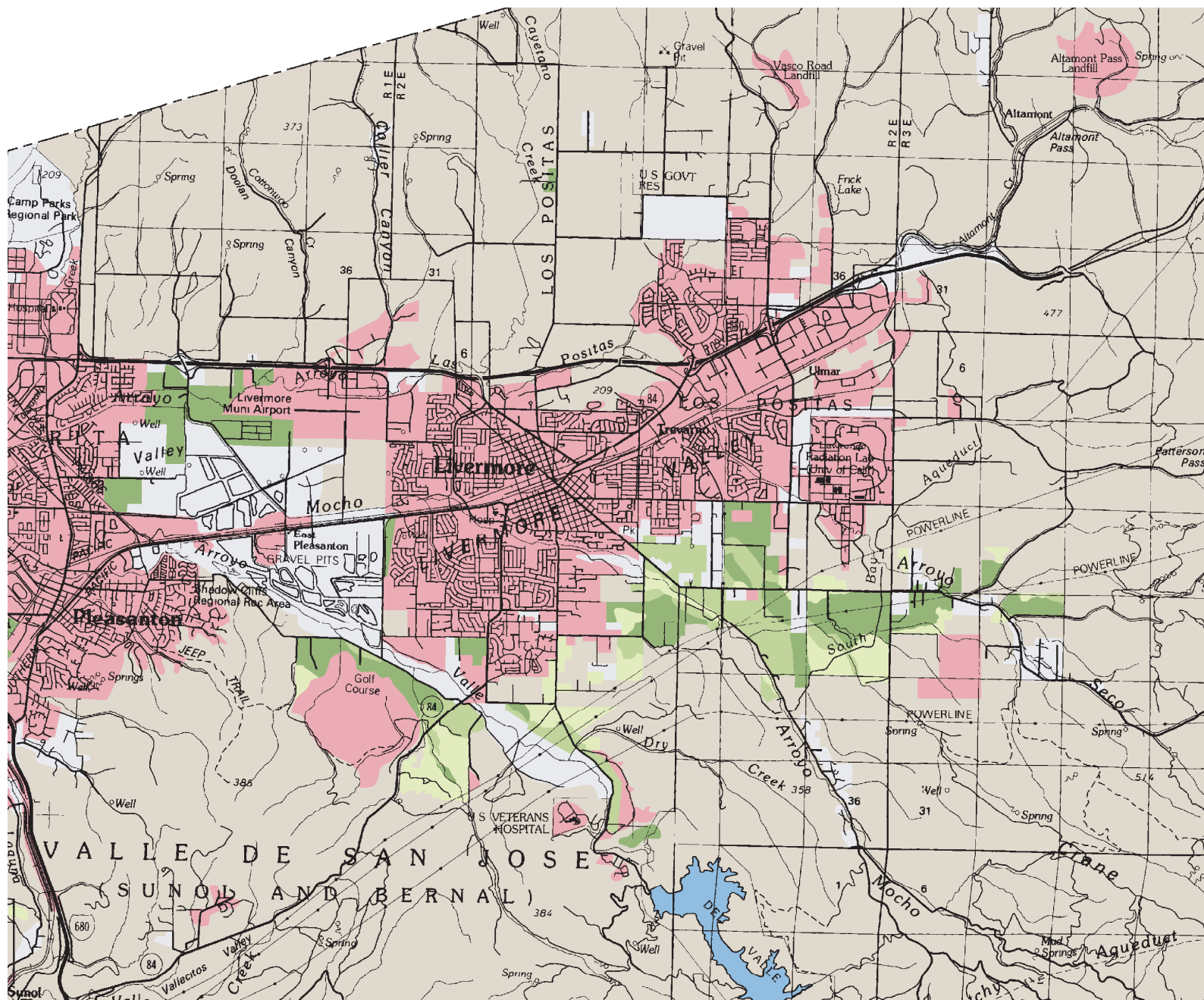
Public Resources Code Section 2761 states that the Conservation Element of the General Plan must include mineral resources policies that address the conservation and development of identified mineral deposits of Statewide importance, balance the value of these deposits against competing land uses, and minimize the impact of mining activities. Areas within the vicinity of Livermore are underlain by alluvial deposits, which contain significant reserves of sand and gravel deposits suitable for use as aggregate in the production of Portland Concrete Cement. In some cases, the areas above these deposits are experiencing development pressures as Livermore continues to grow outward. These mineral resources are important to the economy of both Livermore and the State, and should be protected.

Mineral Resource Designations

Due to the high value of sand and gravel deposits in the vicinity of Livermore, the California Geological Survey (formerly the California Division of Mines and Geology) has mapped and classified the aggregate resources of the Livermore-Amador Valley. Most of the valley floor south of I-580 is classified as an area of significant mineral resources. This portion of the valley floor includes areas classified as Mineral Resource Zone 2 (MRZ-2) and Mineral Resource Zone 3 (MRZ 3). An MRZ-2 is an area where adequate information indicates that significant mineral deposits are present. Areas classified as MRZ-3 are considered to contain mineral deposits, but the significance of the deposits cannot be determined on the basis of available information.

FIGURE 8 - 2

IMPORTANT FARMLAND



- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Grazing Land
- Urban and Built-up Land
- Other Land
- Water



SOURCE: FARMLAND MAPPING AND MONITORING PROGRAM, DIVISION OF LAND RESOURCE PROTECTION, DEPARTMENT OF CONSERVATION, 2002.

As part of the California Geological Survey Mineral Lands Classification Program, areas classified as MRZ-2 are considered in the determination of “resource sectors” (sectors). Sectors are areas where mineral extraction is occurring and areas that have current land uses that are similar to areas where mining has occurred. As shown Figure 8-3, the Planning Area contains six resource sectors and a portion of one other sector. Aggregate resources within these sectors are estimated to be approximately 100 million tons. One sector, located north of Alden Lane and East of Isabel Avenue, has already been urbanized, limiting the availability of the aggregate resources from that source.

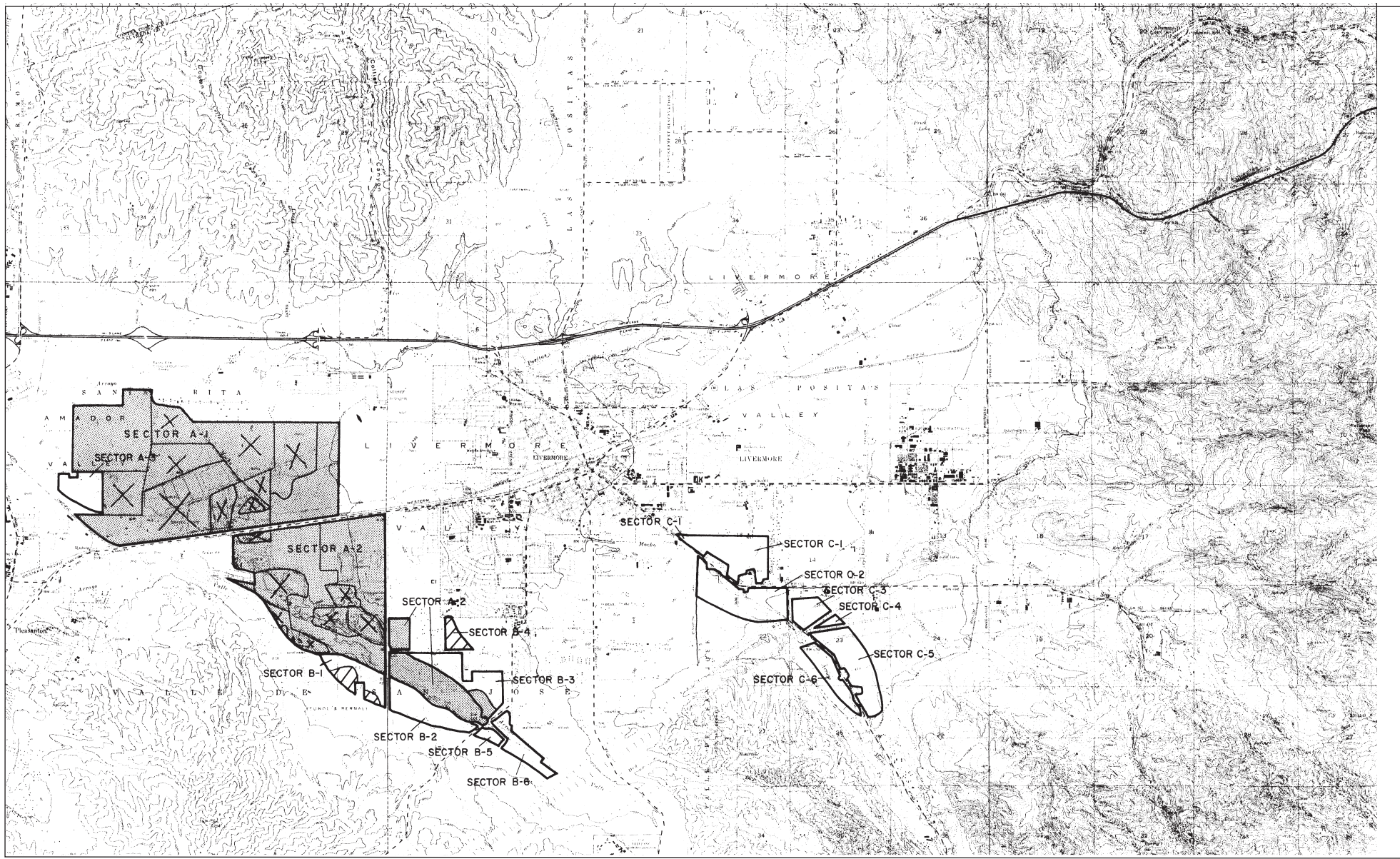
Areas of Regional Significance

The resource sectors within the Planning Area were designated by the State Mining and Geology Board in 1987 as “areas of regional significance.” Under the State Mining and Reclamation Act (SMARA), specific actions are required during consideration of land use planning in areas designated as “areas of regional significance” in order to conserve important mineral deposits. SMARA Section 2763 requires that, prior to permitting land uses which would threaten the potential to extract minerals within areas of regional significance, a lead agency must prepare a statement specifying its reasons for permitting the proposed use. The State Mining and Geology Board Reclamation Regulations define incompatible land uses as “land uses inherently incompatible with mining and/or that require public or private investment in structures, land improvements, and landscaping and that may prevent mining because of the greater economic value of the land and its improvements.”

B. Goals, Objectives, Policies, and Actions

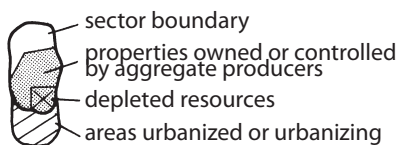
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| Goal OSC-3 Protect agricultural open space in the Planning Area and the City. |
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Objective OSC-3.1 Preserve agricultural land, a vital part of Livermore’s open space network and an irreplaceable natural resource.



SOURCE: CALIFORNIA DEPARTMENT OF CONSERVATION, DIVISION OF MINES AND GEOLOGY, 1996.

FIGURE 8 - 3



MINERAL RESOURCE SECTORS WITHIN THE PLANNING AREA

Policies

- P1. Undeveloped lands that are State-designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.
- P2. The City shall encourage the County to preserve agricultural activities outside the Urban Growth Boundary.
- P3. The City shall take all possible steps to preserve and expand the vineyards.
- P4. Expansion of viticulture on lands rated “good and very good” for the production of wine grapes, as defined by the National Resources Conservation Service, shall be encouraged.
- P5. The City shall encourage agricultural landowners to enter the agricultural preserve program established under the Land Conservation Act, particularly in areas adjacent to patterns of urbanization encouraged by the General Plan.

Actions

- A1. Work with land trust organizations, other conservation groups, and water purveyors to preserve agricultural uses outside the Urban Growth Boundary.
- A2. Work cooperatively with organizations that promote and market agricultural products grown or processed in and around Livermore.
- A3. Identify potential funding mechanisms to support the preservation of agricultural uses.

Objective OSC-3.2 Preserve valuable agricultural soils in the Planning Area.

Policies

- P1. The City shall consider potential impacts of mineral extraction on air and water quality, on agriculture, vegetation and wildlife, and on scenic, visual, and recreation resources in the review of any extractive proposal. Any activity that would have an irreparable adverse impact or significant effect on the values of such resources shall be considered incompatible with the maintenance of these values.

- P2. Encourage soil conservation practices, as recommended by the Natural Resources Conservation Service (formerly USDA's Soil Conservation Service).
- P3. The City shall pursue application for United States Department of Agriculture (USDA) grants to provide funding for stabilization of creeks and creek banks.

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| <p>Goal OSC-4 Preserve and utilize mineral resources in the City and its Planning Area, while ensuring minimal adverse impacts on environmental resources and surrounding uses.</p> |
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Objective OSC-4.1 Achieve a balance between the need to utilize mineral resources while minimizing negative environmental impacts of resource extraction to the greatest extent feasible.

Policies

- P1. When considering land use proposals, the City shall take into account potentially available mineral resources on the property or in the vicinity.
- P2. Prior to approval of any new or expanded mining operation, the City shall ensure that the operation will not create significant nuisances, hazards, or adverse environmental effects. The City shall require environmentally sound quarry operations by ensuring compliance with all applicable City policies and standards of the City's Municipal Code and noise standards in the Noise Element of the City's General Plan.
- P3. New or substantially expanded mining operations in the Planning Area must adhere to the following standards:
 - (a) Demonstrate no significant adverse impacts from the mining operation on adjoining areas and uses, including, but not limited to, noise, dust, and vibration;
 - (b) Demonstrate no substantial increase in hazards to neighboring uses, water quality, air quality, agricultural resources, and biological resources;
 - (c) Demonstrate that the proposed plan complies with existing applicable County and State waste management plans and standards;

- (d) Implement a landscaped buffer zone between quarrying operations and noise-sensitive adjacent uses to ensure consistency with standards established in the City's Noise Element of the General Plan.
 - (e) Use berms, barriers, sound walls, and other similar measures to assure that noise from quarrying does not cause exceedance of ambient noise level standards relevant to noise-sensitive adjacent uses.
- P4. Allow continued operation and minor expansion of existing mining operations within the Planning Area only where impacts to environmental resources and surrounding residential uses can be mitigated to less-than-significant levels.
- P5. Ensure reclamation of mining areas for reuse consistent with the land use designation for the area in accordance with the California Surface Mining and Reclamation Act (SMARA) when mining use is phased out.

III. OPEN SPACE FOR OUTDOOR RECREATION

A. Background Information

Livermore is served by an extensive network of parks, ranging from large regional parks, covering several hundred acres, to small neighborhood parks with tot lots. Existing parks within the City are shown in Figure 8-4. The parks in the City offer Livermore residents a wide variety of open space and recreational opportunities, including formal sports fields, tennis courts and aquatic facilities, open play fields, hiking and bicycle trails, tot lots, picnic areas and space for public events. In addition to public open space, Livermore has a number of community facilities, including three public library branches, a senior center, and several spaces available for public events and community group activities.

The City of Livermore owns and operates several of the smaller parks in the City. The Livermore Area Parks and Recreation District (LAPRD), however, has the primary responsibility to provide, plan for, and maintain parks and community facilities, as well as many miles of scenic multi-use trails in Livermore and the surrounding area. The East Bay Regional Parks District (EBRPD), an additional

park and recreation district, also provides and is responsible for developing and maintaining parks and public open space in the Livermore, particularly in the larger Planning Area environs.

LARPD has developed the standards listed in Table 8-2 to determine the amounts of different types of parkland needed to serve Livermore residents. According to standards set by LARPD, the amount of Regional, Neighborhood, and Special Use parks currently provided for Livermore residents is adequate. However, in 2002, there was shortfall of approximately 110 acres of Community Parks in Livermore, equal to three or four parks of 30 to 40 acres each.

As of 2002, LARPD had begun an update of its 1995 Master Plan. The updated Master Plan will re-evaluate park, bicycle, and trail facilities, as well as recreational programs covered in

TABLE 8-2 LARPD PARK STANDARDS

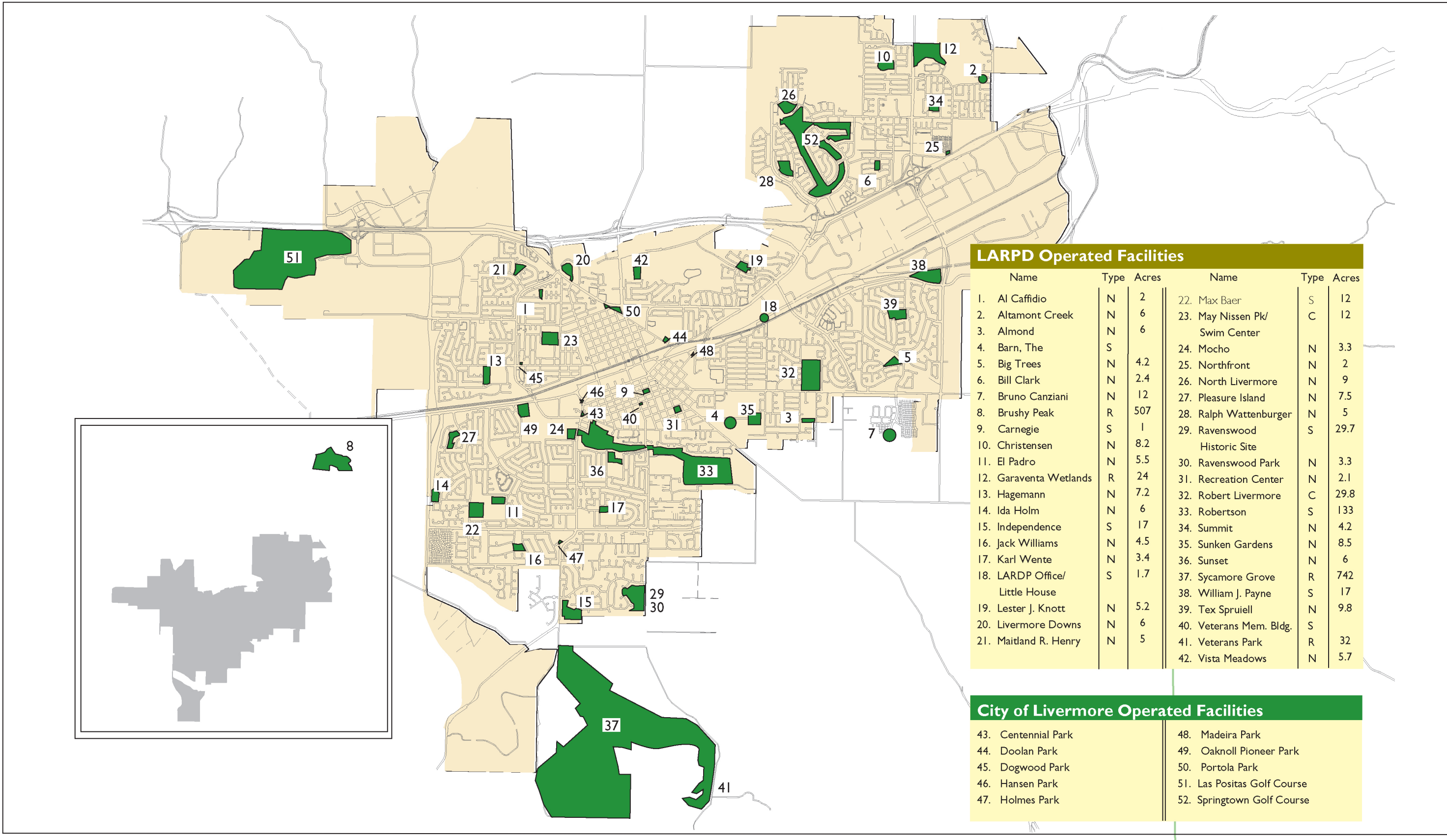
| Park Type | Description | LARPD Standard |
|------------------|---|--|
| Neighborhood (N) | 6 - 10-Acres. Service Area: ¾ to 1 mile. No permanent restrooms, no sports lighting. Includes open play fields, small picnic areas, tot lot. | 2 acres/1,000 residents or 1 park/3,000-5,000 residents |
| Community (C) | +30-Acres. Service Area: 2-miles. Includes sports fields with lighting where possible, permanent restrooms, on-site parking, tennis courts, aquatic facilities, large group picnic areas. | 2 acres/1,000 residents |
| Regional (R) | 250-acre minimum. Service Area: within 1 hour drive. Minimal improvements, site must provide habitat for plants and animals, permanent restrooms only when feasible. | 15 acres/1,000 residents |
| Special Use (S) | No Minimum Size. Service Area: may include the whole community. Activities may include rodeos, soccer, softball and concerts. | 3 acres/1,000 residents |

the 1995 document. The updated Master Plan will expand its analysis to include a broader range of goals, objectives, and policies of the agency, along with implementation timelines .

B. Goals, Objectives, Policies, and Actions

Goal OSC-5 Develop a full complement of parks and other recreational lands for public use and enjoyment.

Objective OSC-5.1 Provide a comprehensive system of parks and recreation facilities in Livermore.



Source: LARPD, Thomas Brothers

FIGURE 8 - 4

PARKS AND RECREATION FACILITIES

LIVERMORE GENERAL PLAN

Policies

- P1. Livermore's existing parks shall be maintained and enhanced, as appropriate.
- P2. Require developers to provide land or in lieu fees for parks, as governed by the terms of the Quimby Act.
- P3. The City shall implement a standard of five acres of publicly-owned parkland per thousand population and require new development to provide new park acreage or in-lieu fees at this ratio.
- P4. Where feasible and safe, the City shall provide recreational access to properties on which new public facilities are sited.
- P5. To the extent allowed by State law, the City shall coordinate with LARPD regarding the timing on completion of park improvements. Recommendations from LARPD shall be considered by City decision-makers and incorporated into conditions of approval, as appropriate. Park improvements shall be coordinated with other public improvements (such as water, sewer, and roads) needed to serve new development.
- P6. The City shall coordinate and cooperate with LARPD and EBRPD in developing adequate regional park space around Livermore to serve foreseeable population increases in Livermore and its environs.
- P7. The City and LARPD shall work to update the in-lieu park fee ordinance, which will include an evaluation of park needs Citywide, as well as the Downtown Area. The update shall include the development of park in-lieu fees for all residential types, as well as commercial and industrial development, within the community. The City and LARPD shall work together to develop park locations in the City, as well as the Downtown Area.
- P8. The City shall coordinate with LARPD to develop adequate neighborhood, community, and other appropriate park space within Livermore to serve foreseeable population increases.
- P9. If LARPD cannot identify an appropriate future community park site within the urban growth boundary, the City shall support the efforts of LARPD to seek a community park

site outside the urban growth boundary, in accordance with the North Livermore Urban Growth Boundary Initiative (NLUGBI).

- P10. The City shall support the efforts of LARPD to identify sites to address the community park shortfall existing in 2002 and shall coordinate with LARPD to identify funding options for parkland acquisition and improvements.
- P11. The Isabel Neighborhood Specific Plan (INSP) calls for a comprehensive network of parks, plazas, and open space to support development in the Isabel Neighborhood area (see Figure 3-3 for boundaries). Refer to the INSP for the park and open space standards applicable to the Isabel Neighborhood area.

Actions

- A1. Work with LARPD on the update of its master plan for the development of parks, including the identification of sites for future parks and recreation facilities.
- A2. Conduct a facilities study of the City's public buildings and uses to assess current and future needs for additional facilities.
- A3. Begin development of a Memorandum of Understanding with LARPD to address the use of park fees Citywide, as well as in Downtown, before the end of 2003.

Objective OSC-5.2 Provide a full range of recreational activities within Livermore's park system.

Policies

- P1. The City shall work with LARPD to provide facilities within neighborhood parks that will meet the needs of nearby residents.
- P2. The City shall work with LARPD to provide a full range of public park and recreation facilities that reinforce community identity and are efficient, convenient to users, and appropriately distributed throughout the community.

Objective OSC-5.3 Augment and develop Livermore's cultural and community facilities.

Policy

- P1. The development of cultural facilities and activities for all residents shall be encouraged.

Objective OSC-5.4 Maintain and enhance public access to Livermore's unique natural resources.

Policies

- P1. The City shall continue to encourage public access to, and maintenance of, existing recreational trails in the Planning Areas.
- P2. Recreational access to the open space surrounding the City shall be encouraged to the extent that it is compatible with provisions of the Land Use Element.

Actions

- A1. Develop public recreational opportunities along the arroyos and creeks while ensuring that increased public access is managed so as to protect these areas from adverse environmental impacts such as erosion or water pollution.
- A2. Coordinate development of parkland with LARPD and identify sufficient locations for parks on the General Plan Land Use Map.

IV. AIR QUALITY

Air is a natural resource that is not confined by municipal boundaries. Air pollutants generated in San Francisco may pass through Livermore due to westerly winds; similarly, pollution generated in Livermore may flow toward Tracy. Alternately, with northeasterly winds, air pollution generated in Tracy may affect Livermore and points to the west. Thus air pollution, like other issues of resource degradation, must be at least partly addressed on the regional level. While local efforts to reduce emissions are necessary, they must be part of a concerted regional effort in order to be effective in the long run.

A. Background Information

Pollution Potential

The amount of a given air pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport or dilute that pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain and, for photochemical pollutants, sunshine. Because of the sheltered nature of the Livermore Valley, which is surrounded by hills or low mountains on all sides, air pollution potential is high, especially for photochemical pollutants in the summer and fall. High temperatures increase the potential for ozone (O₃) to accumulate. Livermore Valley not only traps locally-generated pollutants but also can be the receptor of O₃ and O₃ precursors from San Francisco, Alameda, Contra Costa and Santa Clara Counties. On days with northeasterly winds, most common in the early fall, O₃ may be carried west from the San Joaquin Valley to the Livermore Valley. During the winter, the sheltering effect of the Livermore Valley, combined with its distance from moderating water bodies and the presence of a strong high-pressure system contribute to the development of strong, surface-based temperature inversions in the Livermore basin. During these conditions, pollutants such as carbon monoxide (CO) and particulate matter (PM₁₀) generated by motor vehicles, fireplaces and agricultural burning can become concentrated.

Pollution Sources

Livermore's air quality is most affected by CO emissions from motor vehicles. In the Bay Area, CO is typically the pollutant of greatest concern because it is created in abundance by motor vehicles and it does not readily disperse into the air. Because CO does not readily disperse, areas of vehicle congestion can create "pockets" of high CO concentration called "hot spots." While CO transport is limited, it does disperse with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels affecting local sensitive receptors (e.g., residents, school-children, the elderly and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service, or with extremely high traffic volumes.

Other sources of air pollution in Livermore include emissions from automobiles, exhaust from construction equipment, and fugitive dust generally associated with demolition, land clearing, exposure of soils to the air, and cut and fill operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations and weather conditions. Surrounded by a variety of agricultural operations and subject to moderate levels of winds, Livermore will continue to face the issue of fugitive dust in the coming years.

Regulation of Air Quality

Livermore is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen dramatically. The BAAQMD's Bay Area Clean Air Plans (CAPs) contain District-wide control measures to reduce carbon monoxide and ozone precursor emissions. The State Standards for these pollutants are more stringent than the national standards. The BAAQMD is primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and from indirect sources (e.g., traffic associated with new development), and for monitoring ambient pollution concentrations.

Air Quality in Livermore

The BAAQMD maintains an air quality monitoring station in Livermore that measures O₃, CO, Nitrogen Dioxide (NO₂) and PM₁₀. From 1993 to 2002, State standards for O₃ and PM₁₀ have been exceeded in Livermore on numerous occasions. Federal and State standards for CO and NO₂ were not exceeded during the 10-year period. As of 2002, levels of O₃ exceeded State standards in the Livermore area. PM₁₀ standards were not exceeded in 2002 in the Livermore area. These pollutants are expected to continue to be important influences on air quality in both Livermore and the greater Bay Area as vehicular travel increases in the region.

B. Goals, Objectives, Policies and Actions

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| Goal OSC-6 Protect and improve Livermore's air quality. |
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Objective OSC-6.1 Minimize air pollution emissions.

Policies

- P1. The City shall require project developers to develop and implement a construction-period air pollution control plan, consistent with dust and emission-abatement actions outlined in the CEQA handbook of the Bay Area Air Quality Management District.

- P2. The City shall prohibit the location of sensitive receptors (e.g., residential uses, schools, hospitals) in the vicinity of industries that generate toxic emissions; conversely, prohibit the location of industries that generate toxic emissions in the vicinity of sensitive receptors.
- P3. The City shall work with local and regional municipalities and agencies to reduce automobile-related vehicle emissions.
- P4. All industrial uses within Livermore shall meet regional, State and federal air pollution standards.
- P5. The City shall attempt to increase the employment to population ratio to reduce commuting rates and associated vehicle-related pollution emissions. The City shall approve only those development proposals, which are designed and located to minimize energy consumption and adverse impacts on air, land and water resources. High-density, transit-oriented developments shall be strongly encouraged and promoted through the use of specific planning, density transfer, the planned development concept, and zoning designations.
- P6. The City shall monitor air quality and shall consider implementing a population cap if air quality declines.
- P7. The City shall support programs to encourage the development and maximum use of regional and local mass transit systems. To this end, the City shall actively support:
 - (a) the funding and construction of a BART or light/commuter rail extension to Livermore;
 - (b) the designation of special lanes on I-580 for the exclusive use of commuter buses during peak traffic periods; and
 - (c) close coordination in the operations of local and regional transit systems in order to minimize the travel time between communities and major generating areas served by the regional system.

Actions

- A1. Provide incentives to purchase vehicles that have alternative fuel systems with reduced emissions.

- A2. Provide incentives to reduce vehicle trips and increase ridesharing so as to reduce pollutants generated by vehicular combustion engines.
- A3. Seek means to meet State standards for emission of air pollutants so that vegetation (including crops), the visual environment, and public health will be protected.
- A4. Study the implementation and feasibility of a population cap which would be implemented in the event of a decline in air quality over the next five to ten years.
- A5. Coordinate with other local and regional agencies (e.g. LARPD, LVJUSD, Alameda County) to manage and control fugitive dust from sources including, but not limited to, quarries, ballfields, construction sites and landscaping and maintenance activities.
- A6. Triennially, concurrent with the development of each three-year Housing Implementation Program, review and report changes in local air quality levels, based on reports published by the Air Quality Management District, to the City Council to determine if consideration of a population cap is warranted.

V. ENERGY CONSERVATION

A. Background Information

In 2000, California experienced an electrical energy supply shortage as a result of the restructuring of the State's utility industry. This energy shortage resulted in escalating utility rates, rolling blackouts, and attempts to subsidize wholesale purchases of electricity. While the energy shortage resulted from high wholesale electricity costs, rather than a shortage of electricity supply, rolling blackouts and high energy bills hastened a return of energy conservation, as experienced in the early 1970's, to the public's consciousness.

Energy conservation not only has economic benefits, but environmental implications. The combustion of fossil fuels to produce heat or electricity, or to power internal combustion engines, has been linked to global warming. In addition, the extraction and processing of these fossil fuels have added costs, in terms of environmental degradation caused by mining operations, and the foreign policy obligations that result from importing a large percentage of the nation's oil. In Livermore, energy conservation can be achieved via reduction in electricity usage and private automobile use,

encouraging efficient siting and exposure for buildings, encouraging the use and development of alternative sources of energy, and implementing land use and transportation policies that encourage energy efficiency.

A complex relationship exists between land use, transportation, and energy use. In general, communities with a high residential density, the presence of easily-accessible urban services such as food markets, doctor's offices, and schools, and strong public transit systems result in a lower per-capita energy use than areas where development patterns are dispersed and that necessitate the use of an automobile to access basic services. Therefore, a crucial component of a successful energy conservation program in Livermore will be to encourage patterns of growth that allow for increased transit service and use of alternate modes of transport, such as biking and walking.

B. Goals, Objectives, Policies and Actions

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| Goal OSC-7 Minimize Livermore's energy consumption. |
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Objective OSC-7.1 Promote a variety of approaches to energy conservation in the public and private realms.

Policies

- P1. The City shall promote the construction of energy-producing wind turbines in the vicinity of Livermore.
- P2. The City shall approve only those development proposals which are designed and located to minimize energy consumption and adverse impacts on air, land, and water resources.

Actions

- A1. Create and use incentives to encourage commercial, residential, and industrial energy users to install on-site alternative energy sources, such as photovoltaic (PV) cells.
- A2. Where appropriate, replace City-owned vehicles with alternatively-fueled or hybrid vehicles.

- A3. Develop incentive programs to encourage businesses to replace diesel vehicles with less polluting alternatives such as compressed natural gas, bio-based fuels, hybrids, and electric batteries.